The Effects of Whey-Cultured Saccharomyces boulardii and Lactobacillus casei on Treatment and Prevention of Experimental Colitis

Sara Solki*[1]; Tina Didari[1]; Mohammad Abdollahi[2]

1- Department of Microbiology , Faculty of Biotechnology, Pharmaceutical branch, Islamic Azad University, Tehran, Iran

2-Faculty of Pharmacy and Pharmaceutical Sciences Research Center, Tehran University of Medical Sciences, Tehran, Iran

sara.solki@yahoo.com

Background & Objectives: Inflammatory bowel disease (IBD) is a severe form of intestinal inflammation, including Crohn's disease (CD) and Ulcerative colitis (UC), which involve a dysregulated host- microbiota interaction. Recently, probiotic therapies have been concerned to restore balance to the gastrointestinal microbiota and reduce intestinal inflammation in IBD. A number of different studies showed the anti-inflammatory effects of the nonpathogenic yeast probiotic *Saccharomyces boulardii* and gram positive probiotic bacteria *Lactobacillus casei* in IBD, separately, therefore we thought that by use of both, the synergistic effects would occur.

Methods: Colitis was induced by 2,4,6 trinitrobenzen sulphonic acid (TNBS)/ absolute ethanol in male Wistar rats(9). Animals were classified into different groups (6 rats in each group) including normal (non-colitis), negative control (received TNBS without any treatment) and positive control (dexamethasone 1 mg/kg/day orally). The prevention group received 1×108 cfu whey cultured *L. casei* and S. *boulardii* orally before inducing the colitis and treatment group received 1×108 cfu whey cultured *L. casei* and *S. boulardii* orally after induction of colitis. The period of treatment was 10 days, then animals were sacrificed and distal colon were removed and examined for inflammatory markers such as tumor necrosis factor (TNF-α), myeloproxidase (MPO), lipid peroxidation (LPO) and histopathological scores.

Results: The results indicated that whey-cultured *L. casei* and *S. boulardii* improve the colon histopathological scores, TNF α, MPO and LPO rates in treatment group; however, probiotic therapy did not show positive effect in prevention group.

Conclusion: In conclusion, the synergistic effects of combination of *S. boulardii* and *L. casei* demonstrated that these probiotics should be considered in treatment protocols of IBD.

Keywords: *Saccharomyces boulardii*; Lactobacillus casei; Colitis